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Enclosed for filing is the patent application of Inventor(s):  
JACOBUS W. VALLEN

For: ELECTRIC BALLAST

**ENCLOSED ARE:**

- ☒ Appointment of Associates;
- ☒ Information Disclosure Statement, Form PTO-1449 and copies of documents listed therein;
- ☒ Preliminary Amendment;
- ☒ Specification (6 Pages of Specification, Claims, & Abstract);
- ☒ Declaration and Power of Attorney:  
(1 Page of a ☒ fully executed ☐ unsigned Declaration);
- ☒ Drawing (4 sheets of ☐ informal ☒ formal sheets);
- ☒ Certified copy of European application Serial No. 98200271.9;
- ☒ Authorization Pursuant to 37 CFR §1.136(a)(3)
- ☐ Other:
- ☒ Assignment to U.S. Philips Corporation.

**FEE COMPUTATION**

CLAIMS AS FILED				
FOR	NUMBER FILED	NUMBER EXTRA	RATE	BASIC FEE - \$760.00
Total Claims	4 - 20 =	0	X \$18 =	0.00
Independent Claims	1 - 3 =	0	X \$78 =	0.00
Multiple Dependent Claims, if any			\$260 =	0.00
TOTAL FILING FEE . . . . .			=	\$760.00

Please charge Deposit Account No. 14-1270 in the amount of the total filing fee indicated above, plus any deficiencies. The Commissioner is also hereby authorized to charge any other fees which may be required, except the issue fee, or credit any overpayment to Account No. 14-1270.

☐ Amend the specification by inserting before the first line as a centered heading --Cross Reference to Related Applications--; and insert below that as a new paragraph --This is a continuation-in-part of application Serial No. , filed .--, which is herein incorporated by reference--.

**CERTIFICATE OF EXPRESS MAILING**

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Date of Deposit January 4, 1999

I hereby certify that this paper and/or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Atty. Docket

JACOBUS W. VALLEN

PHN 16,749

Serial No.

Group Art Unit:

Filed: Concurrently

Examiner:

**ELECTRIC BALLAST**

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to calculating the filing fee and examination,  
please amend the above-identified application as follows:

IN THE CLAIMS

Please amend the claims as follows:

Claim 3, line 1, delete "or 2".

REMARKS

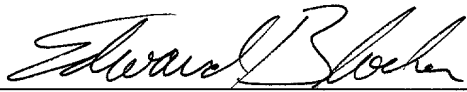
In view of the above-amendatory matter and remarks to  
follow, early and favorable consideration of the subject  
application are respectfully requested.

Claim 3 has been amended to eliminate multiple

dependency.

It is hoped that this Preliminary Amendment will  
facilitate examination of the application on its merit.

Respectfully submitted,

By   
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December 30, 1998

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Electric ballast.

### Description

The invention relates to an electric ballast comprising an electric coil with coil windings having a width  $d$  which are wound on a synthetic resin coil base including a box-like base part comprising four faces arranged so as to form a rectangle for accommodating a metal core, said base part being provided on either side with mutually  
5 parallel flanges limiting the width  $d$  of the coil windings.

An electric ballast of the type mentioned in the opening paragraph is known from EP-0 018 596. Said known ballast can suitably be used, inter alia, as a ballast  
10 for an electric gas discharge lamp. In said known ballast, the coil base comprises lamellae which, after providing the coil windings, are turned over and secured with a free end to the base part so as to completely enclose the coil windings. The base part and the lamellae are made of an insulating synthetic resin and are manufactured in a single piece. Turning over the lamellae requires the presence of folding seams at the location where the lamellae meet  
15 the base part. This constitutes a drawback.

The invention provides a measure for obviating said drawback. An electric ballast of the type mentioned in the opening paragraph is characterized in accordance  
20 with the invention in that the coil is provided with a separate insulating synthetic resin cover, which is in one piece and which, in co-operation with the coil base, encloses the coil windings.

In the case of the ballast in accordance with the invention, a separate one-piece synthetic resin body is used which externally encloses the coil windings, as a result,  
25 folding seams in the synthetic resin of the base part are no longer necessary. This has a large number of important advantages. A first advantage is that the base part and the cover may be manufactured from a different type of synthetic resin. For example, the base part, which serves as a support, may be made of a glass-filled synthetic resin which, on the one hand, is brittle and hence unsuited to be turned over but which, on the other hand, has a high

rigidity. By virtue thereof, a thin-walled base part can be used which enables the coil windings to better fill the volume occupied by the coil base. This has a favorable effect on the efficiency of the ballast and on the volume thereof. The cover may be made of unfilled synthetic resin.

5 Another advantage is that in the case of a coil base which accommodates not only supply-voltage windings for feeding the lamp but also high-voltage windings, a thin-walled base part having increased insulation properties is possible, the high-voltage windings being provided near the faces thereof, and the supply-voltage windings being provided near the cover. This is favorable, inter alia, from the point of view of safety.

10 A further advantage of the invention resides in that both the cover and the coil base may each have a substantially constant wall thickness. This generally leads to a more efficient production cycle in the manufacture of the relevant synthetic resin products in batches on an industrial scale. The coil base of the ballast in accordance with the prior art, however, will exhibit a substantial reduction in wall thickness at least at the location of the  
15 folding seams. As a result, there is a substantial spread in the curing time of the synthetic resin.

In addition, the invention leads to an important efficiency improvement of the coil manufacture in that, in the case of the inventive ballast, after the provision of the coil windings on the coil base, only the single cover has to be provided, two ends of which  
20 are connected to each other. Unlike this, in the case of the known ballast, after the provision of the coil windings on the coil base, 6 lamellae must be turned over and at least two of said lamellae must be secured to the base part. This does not only involve a larger number of operations, but also the sequence in which the various lamellae are turned over is to be observed.

25 Further, the measure is also advantageous as regards the tools necessary for manufacturing the ballast, since, in the case of the invention, during winding, the tools only have to retain the coil base without the necessity of keeping additional lamellae outside the winding field. This results in the use of simpler tools.

In an advantageous embodiment of the ballast in accordance with the  
30 invention, the coil base is provided with a member for forming a connection member for connecting an external electrical connection, and the cover also forms an external insulation of said connection member. In this very simple manner, both a safe connection of the coil to an electric circuit accommodating the ballast is obtained and the cover is positioned in a defined manner relative to the coil base.

In a further embodiment of the ballast in accordance with the invention, the cover is provided with end portions which are connected to each other. The end portions may be bonded together by means of an adhesive, however, preferably they are interconnected by means of a snap connection.

5                   These and other aspects of the invention will be apparent from and elucidated with reference to the embodiments described hereinafter.

In the drawings:

10                   Figs. 1A,B are a plan view and a side view, respectively, of an electric ballast in accordance with the invention,

Figs. 2A,B are a plan view and a side view, respectively, of a synthetic resin coil base with a box-like base part of the electric ballast in accordance with Fig. 1,

15                   Figs. 3A,B are a side view and a plan view, respectively, of a cover of the electric ballast in accordance with Fig. 1, and

Fig. 4 is an exploded view of a synthetic resin coil base with a cover.

20                   In Figs. 1A and 1B, reference numeral 1 refers to an electric ballast 1 provided with a housing formed by a cover plate 2 mounted on an external sheet stack 3. A coil incorporated within the ballast is provided with a connection member 250 which connects to an external insulation 25 which forms part of a cover 20.

25                   The coil comprises a synthetic resin coil base 10, shown in Fig. 2. Fig. 2A is a plan view and Fig. 2B a side view of the coil base 10. Said coil base 10 has a box-like base part 11 which comprises four faces 111, 112, 113, 114 which are arranged so as to form a rectangle for accommodating a metal core, for example an iron core, which is not shown. The synthetic resin base part is used to reel up coil windings having a width d. The base part is provided, on either side, with mutually parallel flanges 121, 122 which limit the width d of the coil windings. The coil base comprises a member 130 for forming a  
30                   connection member 250 for connecting an external electrical connection.

In Figs. 1A and 1B, the coil is provided with the separate insulating synthetic resin cover 20 which is in one piece and which, in co-operation with the coil base, encloses the coil windings. The cover 20 is separately shown in Figs. 3A and 3B. The cover is provided with a part which forms the external insulation 25 of the member 130 of the coil

base, strip-shaped parts 201, 202 having ends 21, 22, respectively, extending on either side of said part. In the external insulation 25 there are connection apertures 251, 252, 253 for accommodating contact pins of external connection conductors. In the mounted state, the ends are secured to each other, preferably by means of a snap connection 23, 24. The strip-shaped parts are each provided with mutually parallel lamellae 221, 222 which co-operate with the flanges 121, 122, respectively, of the coil base. In this manner, the coil base and the cover together enclose the coil windings.

Fig. 4 shows the coil base 10 and the co-operating cover 20 in an exploded view.

10 In a practical embodiment of an electric ballast in accordance with the invention, which can suitably be used to operate high-pressure sodium lamps having a rated power of 150 W, the coil is provided with high-voltage windings and supply-voltage windings. The high-voltage windings form part of a starter circuit for starting the lamp. As a result, a separate series starter coil can be dispensed with. The coil base of the ballast  
15 described is formed from glass-filled synthetic resin having a wall thickness of 1.3 mm. The high-voltage windings are provided near the faces of the base part of the coil base. The wall thickness of the base part is sufficient for obtaining the required mechanical strength of the coil base during winding the coil windings and for achieving a sufficient electrical insulation of the high-voltage windings. The cover of this ballast is made of an unfilled synthetic resin  
20 and has a wall thickness of 0.5 mm. The small wall thickness of the cover ensures that the strip-shaped parts of the cover are sufficiently flexible and enclose the coil windings, and that they also constitute a sufficiently electrically insulating shield for the supply-voltage windings.

In a further practical embodiment of an electric ballast in accordance with  
25 the invention, said ballast can suitably be used to ignite and operate a high-pressure mercury discharge lamp. The coil of the ballast comprises only lamp supply-voltage windings.

## CLAIMS:

1. An electric ballast comprising an electric coil with coil windings having a width  $d$  which are wound on a synthetic resin coil base including a box-like base part comprising four faces arranged so as to form a rectangle for accommodating a metal core, said base part being provided on either side with mutually parallel flanges limiting the width  $d$  of the coil windings, characterized in that the coil is provided with a separate insulating synthetic resin cover, which is in one piece and which, in co-operation with the coil base, encloses the coil windings.

2. A ballast as claimed in claim 1, characterized in that the coil base is provided with a connection member for connecting an external electrical connection, and the cover also forms an external insulation of said connection member.

3. A ballast as claimed in claim 1 or 2, characterized in that the cover is provided with end portions which are connected to each other.

4. A ballast as claimed in claim 3, characterized in that the ends of the cover are interconnected by means of a snap connection.



## ABSTRACT:

An electric ballast 1 is provided with an electric coil with windings having a width  $d$  which are wound on a synthetic resin coil base 10 comprising a box-like base part 11 of rectangular shape having four faces 111, 112, 113, 114. The base part is suited to accommodate an iron core of the coil. The base part is provided on either side with mutually  
5 parallel flanges 121, 122 which define the width  $d$ .

According to the invention, the coil is provided with a separate, insulating synthetic resin cover which is in one piece and which, in co-operation with the coil base, encloses the coil windings.

Fig. 4

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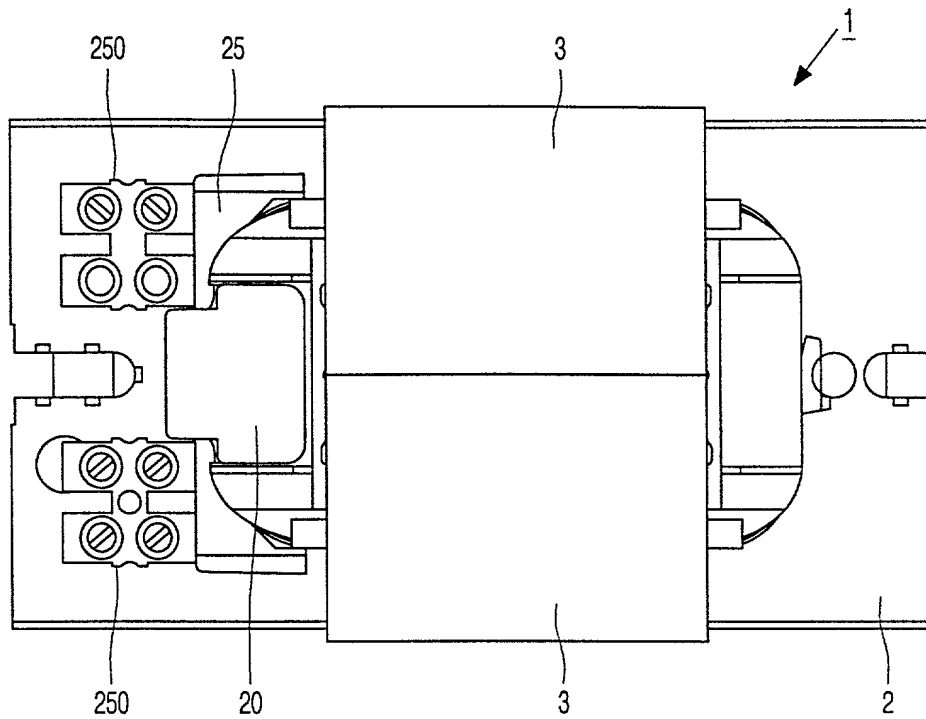


FIG. 1A

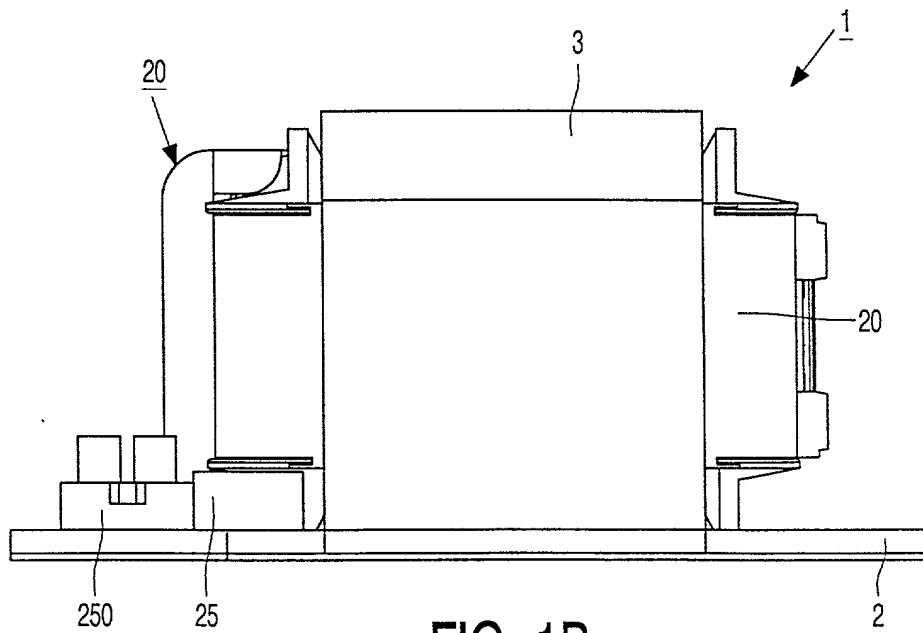


FIG. 1B

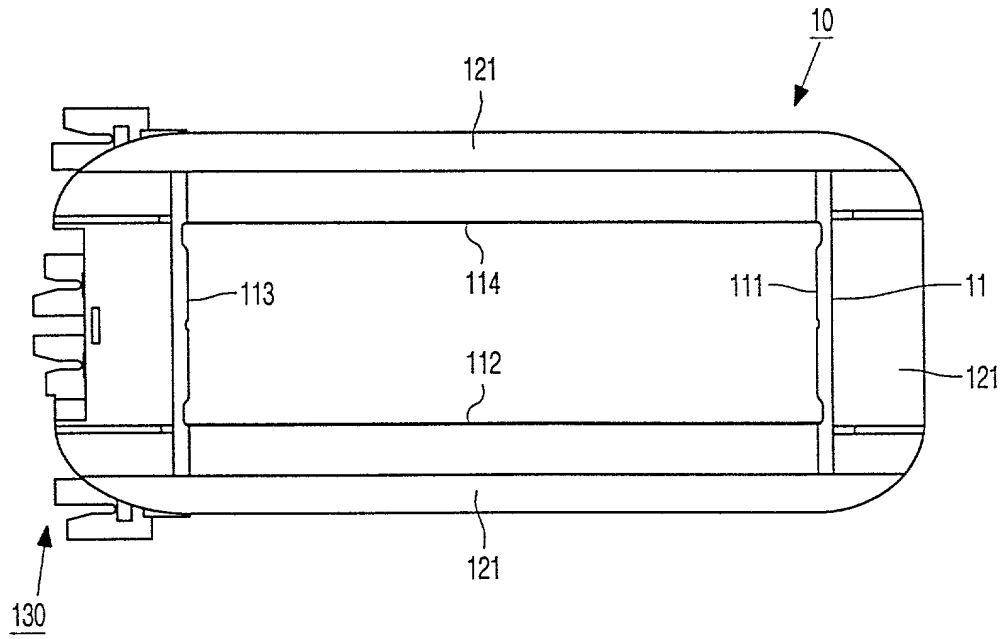


FIG. 2A

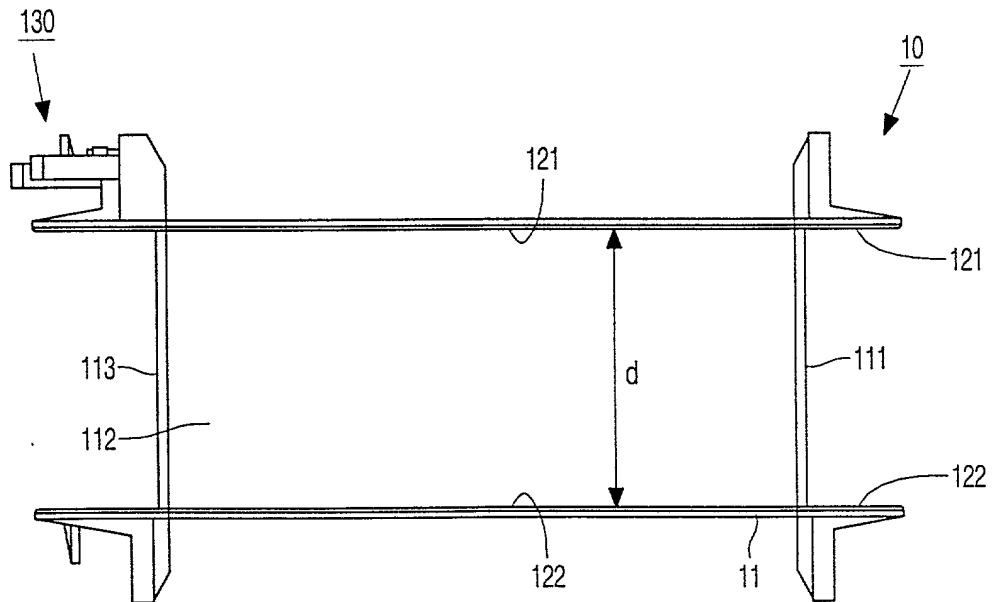
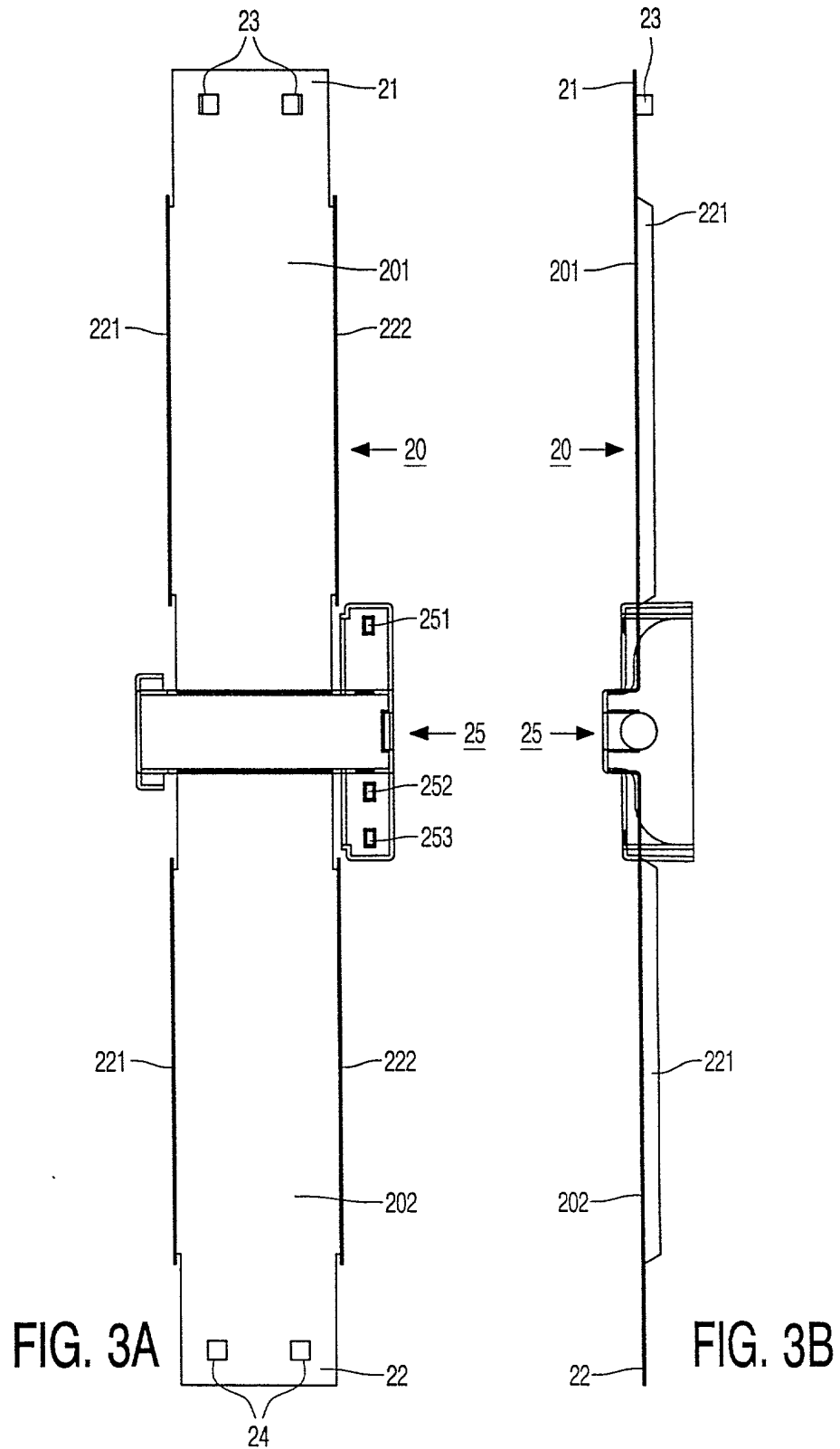


FIG. 2B



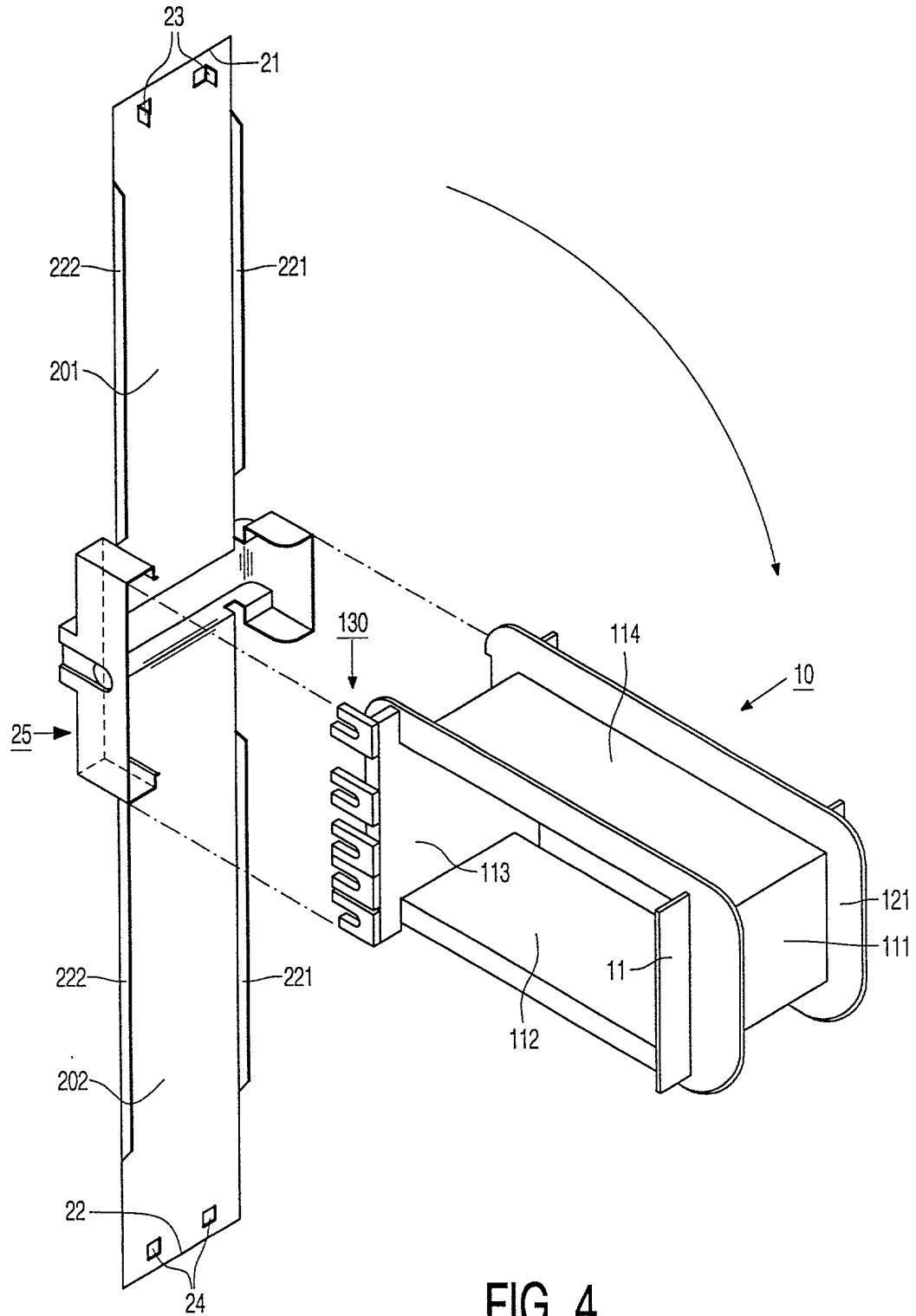


FIG. 4

# DECLARATION and POWER OF ATTORNEY

ATTORNEY'S DOCKET NO.:  
PHN 16.749

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **"Electric ballast"**

the specification of which (check one)

☒ is attached hereto.

☐ was filed on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_ and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by the amendment(s) referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

## PRIOR FOREIGN APPLICATION(S)

COUNTRY	APP.NUMBER	DATE OF FILING (DATE,MONTH, YEAR)	PRIORITY CLAIMED UNDER 35 U.S.C. 119
Europe	98200271.9	30 January 1998	YES

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35 United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

## PRIOR UNITED STATES APPLICATION(S)


APPLICATION SERIAL NUMBER	FILING DATE	STATUS (PATENTED, PENDING, ABANDONED)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

**POWER OF ATTORNEY:** As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

Algy Tamoshunas, Reg. No. 27,677

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SEND CORRESPONDENCE TO: Corporate Patent Counsel; U.S. Philips Corporation; 580 White Plains Road; Tarrytown, NY 10591		DIRECT TELEPHONE CALLS TO: (name and telephone No.) (914) 332-0222	
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Residence & Citizenship	City	State or Foreign Country	Country of Citizenship
Post Office Address	Street	City	State or Country      Zip Code